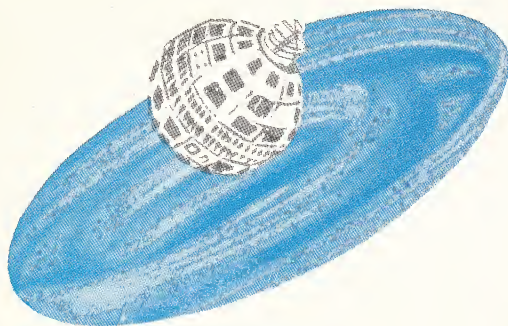


A profile of **GARDNER CRYOGENICS CORPORATION**



**... THE ACTIVITIES,
CAPABILITIES AND PRODUCTS
OF GARDNER CRYOGENICS CORPORATION ...**

"CRYOGENICS", THAT BRANCH OF PHYSICS CONCERNED WITH PHENOMENA OCCURRING AT VERY LOW TEMPERATURES, HAS EMERGED IN RECENT YEARS AS A MAJOR INDUSTRY THROUGHOUT THE WORLD. DESPITE THE YOUTH OF THIS INDUSTRY IT IS EXPERIENCING TREMENDOUS GROWTH WITH NEW APPLICATIONS FOR CRYOGENIC PROCESSES BEING DISCOVERED ALMOST DAILY. RECENT DESIGN TECHNIQUES ARE MAKING LARGE SCALE CRYOGENIC PLANTS AVAILABLE TO A MULTITUDE OF INDUSTRIES. THE GROWTH OF GARDNER CRYOGENICS HAS PARALLELED THE RAPID DEVELOPMENT OF THE CRYOGENICS INDUSTRY.

THE COMPANY WAS FOUNDED BY WILLIAM A. GARDNER, A CHEMICAL ENGINEER WITH OVER A DECADE OF EXPERIENCE IN CRYOGENIC TECHNOLOGY.

MR. GARDNER, TOGETHER WITH A GROUP OF ENGINEERS HAVING COMPARABLE EXPERIENCE, DESIGNED, BUILT, AND CURRENTLY OPERATE THE WORLD'S LARGEST LIQUID HELIUM PRODUCTION FACILITY. UNTIL RECENTLY, LIQUID HELIUM WAS CONSIDERED A LABORATORY TOOL FOR LOW TEMPERATURE RESEARCH. DUE TO THE SUCCESS OF THESE RESEARCH PROGRAMS, LIQUID HELIUM IS NOW REQUIRED IN BULK QUANTITIES FOR LARGER SCALE APPLICATIONS. LARGELY THROUGH THE EFFORTS OF GARDNER CRYOGENICS, LIQUID HELIUM HAS BECOME AVAILABLE AT GREATLY REDUCED PRICES.

AS SPECIALISTS IN THE FIELD OF CRYOGENICS WE ARE ENGAGED SOLELY IN THE DEVELOPMENT, DESIGN AND PRODUCTION OF LOW TEMPERATURE PROCESS EQUIPMENT, FACILITIES FOR THE PRODUCTION AND EFFICIENT DISTRIBUTION OF CRYOGENIC LIQUIDS AND GASES, AND RELATED EQUIPMENT COMPONENTS. OUR ACTIVITIES INCLUDE ENGINEERING DEVELOPMENT, DESIGN, MANUFACTURING, TESTING, OPERATIONS, CONSTRUCTION, PRODUCT DISTRIBUTION, AND CONSULTING SERVICES.

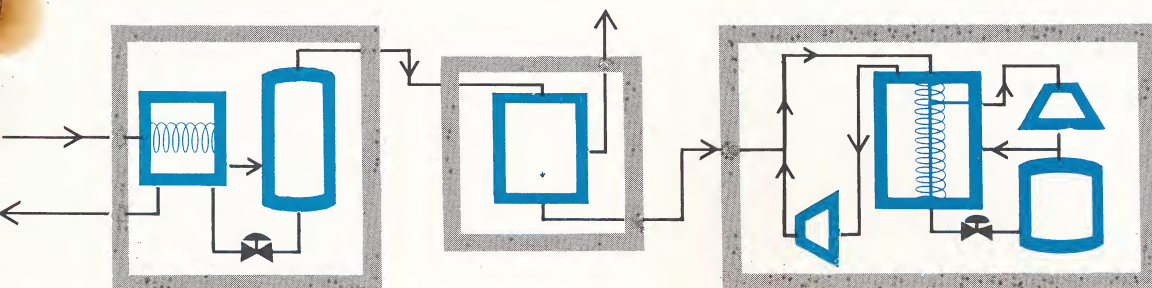
OUR SERVICES ENTER MANY FIELDS OF ENDEAVOR INCLUDING CHEMICALS, PETROCHEMICALS, MEDICAL, AEROSPACE, METALWORKING, GLASS, ELECTRONICS AND NUCLEAR SCIENCES. AS THE FIELD OF CRYOGENICS EXPANDS, GARDNER CRYOGENICS, WITH ITS UNIQUE CAPABILITIES, WILL CONTINUE TO MAKE ADVANCES TO THE STATE OF THE ART.

WE TAKE PRIDE IN OUR DEPTH OF CRYOGENIC KNOW-HOW AND INVITE YOU TO INVESTIGATE OUR CAPABILITIES AND UTILIZE OUR SERVICES.



GARDNER CRYOGENICS

PRODUCTS & EQUIPMENT



Cryogenic Liquids and Gases

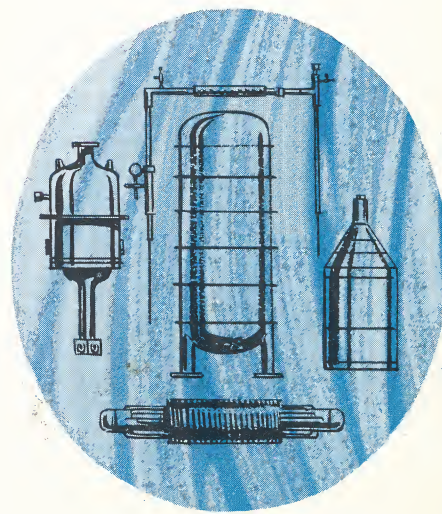
Our basic product is liquid and gaseous helium, delivered in bulk quantities throughout the world. The lowest possible boil-off loss is achieved by using the most modern transport dewars and associated distribution equipment. Gardner Cryogenics has two helium liquefiers at Hightstown, New Jersey and a third is underway at Elkhart, Kansas. With these large plants we can handle orders for helium quickly and efficiently.

Process Equipment

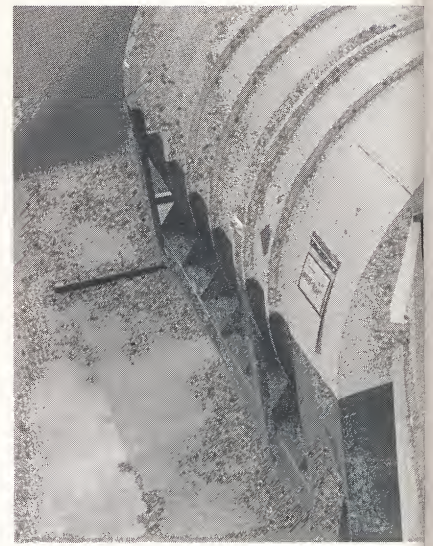
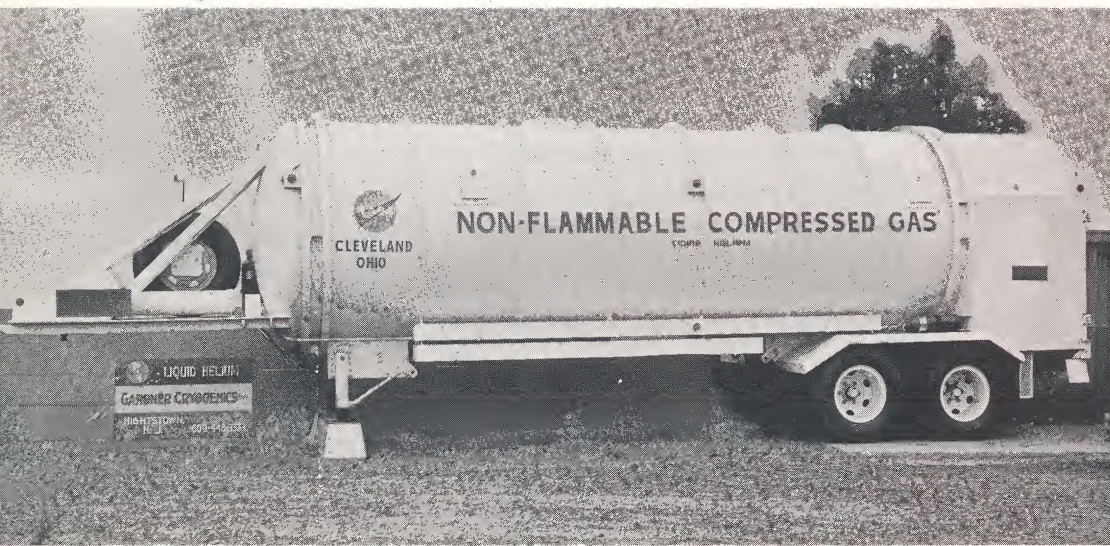
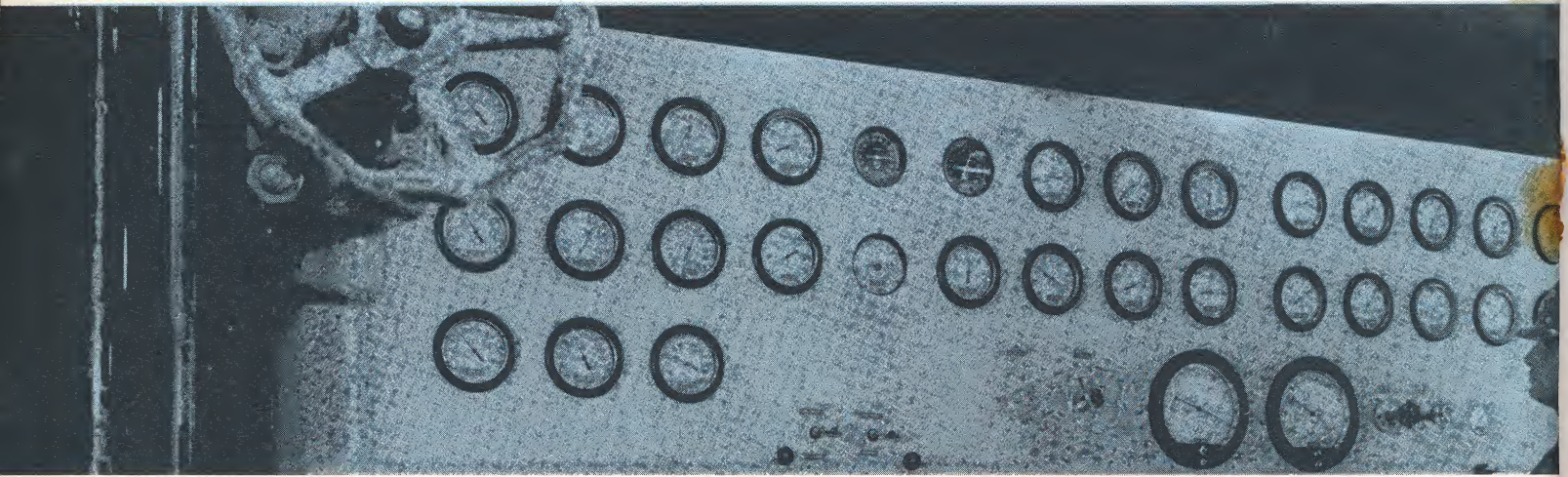
We have the experience and capability to provide cryogenic process plants for the liquefaction of helium, hydrogen, natural gas, air, argon, oxygen and nitrogen; also plants for air separation, carbon monoxide—hydrogen separators, hydrogen purification systems and other processes requiring specialized cryogenic engineering skills. Each plant is custom designed to meet customer requirements for simplicity, reliability, and maximum operating efficiency.

Specialized Cryogenic Hardware & Research Equipment

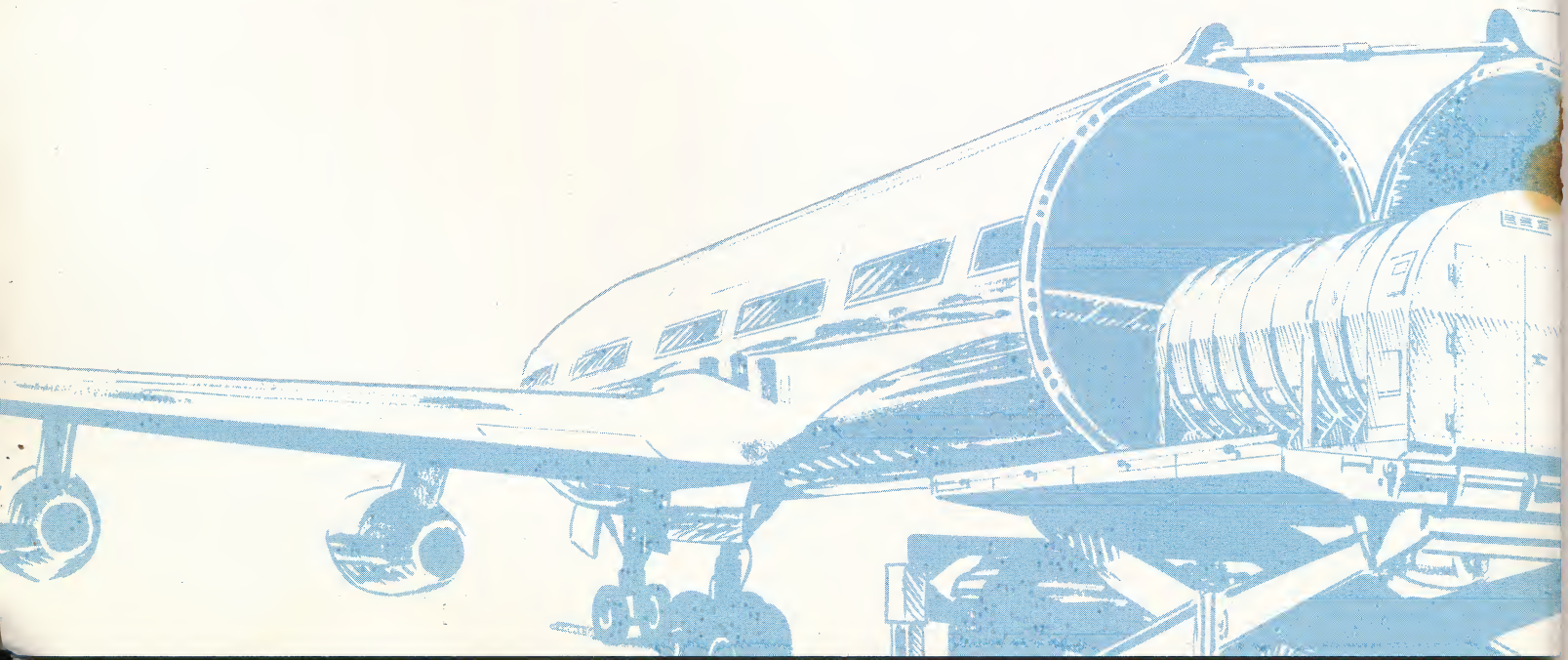
We manufacture a complete line of cryogenic hardware and related equipment used in basic and applied research programs. In addition, we produce helium and hydrogen dewars, product transfer lines, heat exchangers, expansion engines, control and recovery systems, liquid transporters, distillation columns, and many other items specifically designed for individual customer needs.



GARDNER CRYOGENICS



GARDNER CRYOGENICS "SUDDEN"



PRODUCTS

LIQUID HELIUM . . . delivered in bulk quantities throughout the world.



We currently own and operate two helium liquefaction facilities, with a combined plant capacity exceeding 250 liters per hour. Plans are well underway for installation of a new, larger plant for extraction and liquefaction of helium from natural gas, so that Gardner Cryogenics will soon have a much larger supply of liquid helium available for national and international distribution.

Special containers for transporting and storing liquid helium can be rented or purchased from Gardner Cryogenics.

Our dewars for transporting cryogenic fluids are fully tested to protect against product loss. They are available for rent or purchase in capacities of 25, 50, or 100 liters. We also offer 1,000 gallon tanks, trailers to 9,000 gallons capacity, and special dewars with large apertures. A supply of standard containers is always in stock for immediate shipment.

Another important part of Gardner's order-filling ability is our large liquid helium storage facility. We maintain a supply of 9,000 gallons of liquid helium at all times. This storage tank was designed and built by Gardner Cryogenics and is further assurance of promptly filled orders.

OTHER GARDNER CRYOGENIC PRODUCTS

We also distribute helium gas, shipped in containers varying in size from 216 cubic foot cylinders to 130,000 cubic foot trailers. We market other cryogenic fluids such as liquid hydrogen and liquid nitrogen.

From conception to development—from production to distribution—Gardner Cryogenics products receive extra care and attention with a single objective in mind: to assure you of the best performance at the lowest cost consistent with desired quality.




"SUDDEN SERVICE"

"Sudden Service" is our special pride. No matter where you are located, you can be assured of a constant supply of liquid helium. Currently our supply points are near the Newark, Philadelphia, and Los Angeles airports. This, combined with our excellent air transportation arrangements, makes it possible for us to give "Sudden Service" anywhere in the country and in principal cities overseas. We can fill your order the same day it is received at our plant, and under normal conditions we can deliver the order within twenty-four hours. A fleet of trucks for local deliveries is always available.

Gardner Cryogenics "Sudden Service" is probably the most important aspect of our business to your research and development operations, for you are assured of a constant supply of liquid helium, regardless of your location.

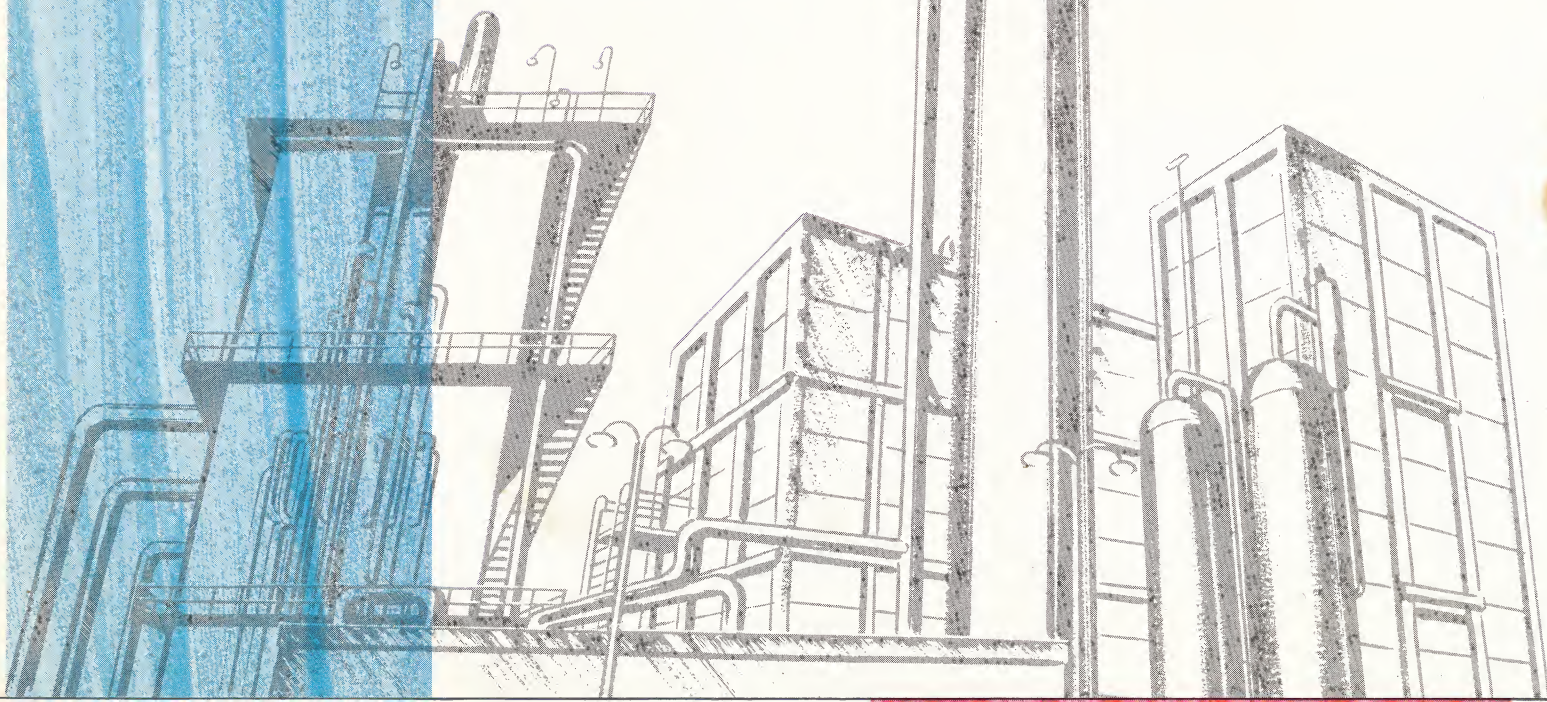




GARDNER CRYOGENICS PROCESS EQUIPMENT CAPABILITIES FOR INDUSTRY

In recognition of the rapidly expanding market for industrial cryogenic equipment, Gardner Cryogenics is now offering complete services for the development, design, fabrication, installation, and operation of a wide variety of equipment for low temperature processing. Our engineering staff specializes in the development of process cycles designed to meet specific customer requirements in the most economical and reliable manner. Process equipment is designed for the service required, and components are either fabricated in our manufacturing facilities or purchased when commercially available at competitive prices. Process plants are shop assembled and shipped to the field as a package or field erected under the supervision of our engineering department.

Our technical staff offers years of experience in the design of cryogenic plants for helium liquefaction, hydrogen liquefaction, air separation, rare gas recovery, natural gas liquefaction, hydrogen purification, hydrogen-carbon monoxide separation, and helium purification. Each plant is designed for reliability, low maintenance, low capital investment, simplicity and maximum operating efficiency.



FIRST CLASS[®]

Permit No. 662

Bethlehem, Pa. 18001

BUSINESS REPLY CARD

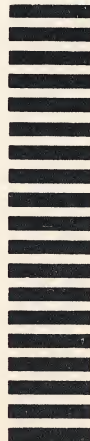
No Postage Stamp Necessary If Mailed in the United States

POSTAGE WILL BE PAID BY—

GARDNER CRYOGENICS CORPORATION

P. O. BOX 2027

BETHLEHEM, PA. 18001



Gentlemen:

Please send additional data on the following:

☐ Cryogenic liquids & gases—particularly_____

☐ Cryogenic process equipment—particularly_____

☐ Special Cryogenic hardware—particularly_____

☐ Consulting services_____

Remarks:_____

Name & Title_____Department_____

Company_____

Business Address_____

City_____State_____Zip No._____

Telephone: Area Code_____Number_____

GARDNER CRYOGENICS SPECIAL CRYOGENIC HARDWARE

Research Dewars & Associated Equipment

We design and manufacture custom dewars for the efficient storage of cryogenic fluids as well as open-mouth and tail-type research dewars. We recently fabricated the largest helium research dewar ever used in this country. This unit, shown at the right, has a 6 foot inside diameter and is over 23 feet long—it is currently being used in superconducting magnet research. Our product line also includes vacuum jacketed piping, siphons, and rigid and flexible transfer lines for the safe and efficient handling and transfer of low boiling fluids.

Equipment supplied by Gardner Cryogenics is factory-tested with the end-use product, including liquid helium. We are the only company offering this type of testing.

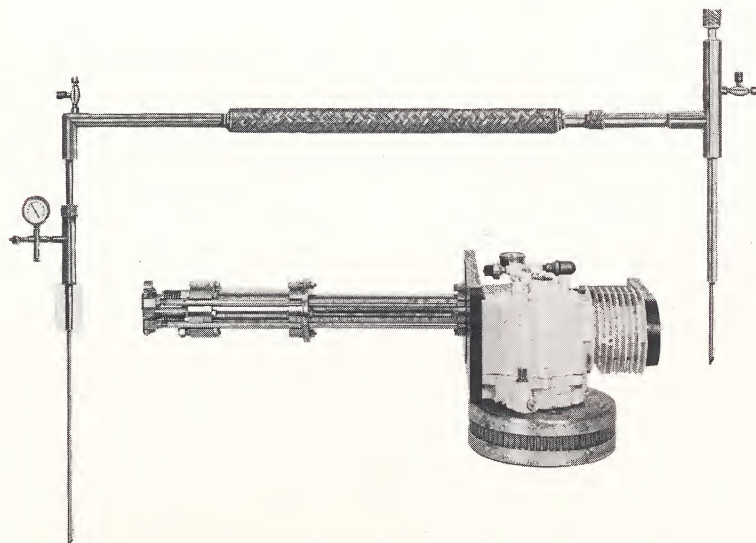
Cryogenic Vessels

The capacity of our standard transport equipment ranges from 25 liter dewars to 9,000 gallon semi-trailers. Our prototype department specializes in the development and production of dewars to meet specific customer requirements. Particular attention is paid to construction details and vacuum retainability. Regardless of complexity or size, Gardner Cryogenics offers you experience, proven performance and reliability.

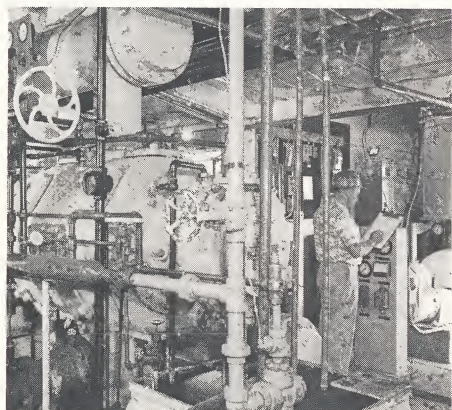
Accessory Equipment

In addition to our capability to produce cryogenic storage vessels, transport systems and research dewars, we also produce highly efficient expansion engines, coil type heat exchangers and cryogenic refrigerators.

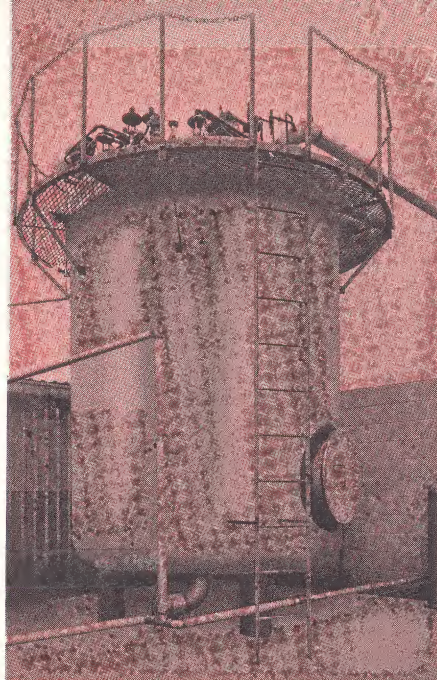
Gardner Cryogenics offers outstanding capability and responsibility for the design, engineering, manufacturing, testing and installation of specialized cryogenic systems.



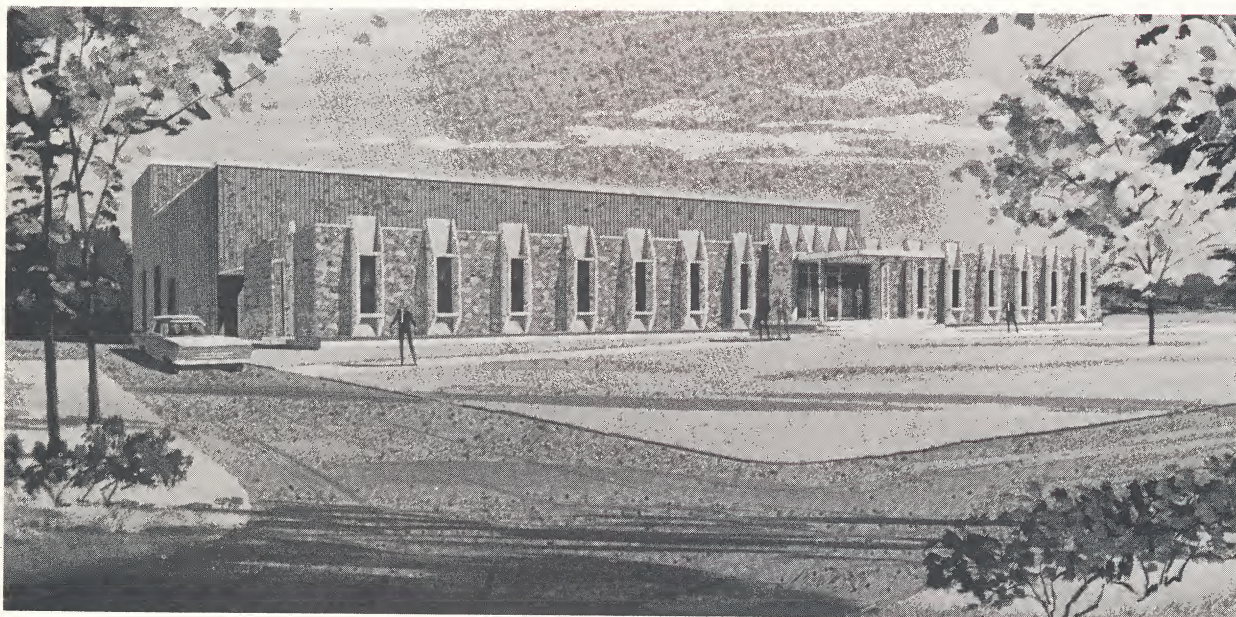
GARDNER CRYOGENICS FACILITIES



The compressor for our 200 liter per hour helium liquefaction plant is shown in the foreground, with the expansion engine and control station in the background.



Heart of the liquefier, a stainless steel cold box designed and built by Gardner Cryogenics, contains heat exchangers and associated equipment under extreme high vacuum.



Our new facility at Bethlehem, Pa., adjacent to the Allentown - Bethlehem - Easton airport.

Consulting Services—Private cryogenic engineering consultation, as well as plants and products, are available from Gardner Cryogenics. Our development engineers, process engineers and scientists are available on a contract basis to organizations desiring these specialized services. This technical staff will advise and assist customers in equipment and component selection, system design, plant operation and many other problem areas which require a thorough knowledge of cryogenic technology.

INQUIRIES

For additional information or proposals, write or call:

Gardner Cryogenics Corporation
Highstown, New Jersey
(609) 448-3373
TWX 609-448-1313

Western Operations:
6505 San Fernando Road
Glendale, California
(213) 246-7306

European Office:
217 B Rue De La Loi
Brussels 4, Belgium
Tel. 34 84 69

GARDNER CRYOGENICS CORPORATION

P.O. BOX 2027, BETHLEHEM, PA. 18001



Liquid Helium • Liquid Hydrogen • Consulting

GARDNER CRYOGENICS CORPORATION
HIGHTSTOWN, NEW JERSEY • PHONE: HIGHTSTOWN 8-3373



T. Nelson, Systems
Mr. T. Nelson
Consultant
Box 1546
Poughkeepsie, New York 12603

Dear Mr. Nelson:

We are pleased to have received your request for information on the services and products of Gardner Cryogenics Corporation. As the enclosed brochure indicates, our main endeavors are liquid helium, cryogenic hardware and sudden service.

Gardner Cryogenics has designed and built two helium liquefaction plants and has the largest production capacity of any company in the Nation or the free world. Because of the large production capacity of our plant, we can sell liquid helium at a lower price than the cost of independent manufacturing. Our location near the Newark Airport, Philadelphia Airport and the Los Angeles Airport, coupled with our fleet of delivery trucks, enables us to make immediate shipment from a large inventory of liquid helium.

Also available, is a complete line of cryogenic hardware. This includes transfer lines, cryostats, cryogenic tanks, liquid helium and liquid hydrogen trailers and all sizes and types of dewars.

We would be happy to call upon you and invite you to discuss your particular requirements with us.

Sincerely yours,

GARDNER CRYOGENICS CORP.

A. John Gardner,
Sales Manager

AJG/ggl
Enclosure